

REMARKS

Claims 1-17 are all the claims pending in the application.

Preliminary Matters

Applicant thanks the Examiner for acknowledging the claim to foreign priority under 35 U.S.C. § 119 as well as indicated that the drawings submitted on January 6, 2004 are accepted. Further, Applicant thanks the Examiner returning an initialized copy of the Information Disclosure Statement filed on July 25, 2006.

Rejection Under § 112, Second Paragraph

Claims 4, 9 and 10 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Examiner asserts that the phrase “such as” in claim 4 renders the claim indefinite.

With regard to claim 9, the Examiner questions whether the “timing control signal” in claims 6 and 9 are the same timing control signals, and asks that Applicant clarify the claims.

Applicant respectfully submits that by this Amendment claims 4, 9 and 10 are in compliance with 35 U.S.C. § 112, second paragraph. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 4, 9 and 10.

Rejection Under § 102(e)

Claims 1, 2, 5, 11,12 and 15 are rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Richards et al. (US Patent No. 6,539,213; hereinafter “Richards”). Applicant respectfully traverses the rejection.

Claim 1 is directed to a transceiver having a receiver “configured to calculate channel information from a UWB pulse signal received over a UWB channel so that a UWB channel condition can be predicted and a data transmission scheme is changed according to the calculated channel information, whereby information transmission can be efficiently made according to the UWB channel condition.”

Richards is directed to a wireless communications system, and more particularly to ultra wideband technology/impulse radio communications systems. Figure 11 of Richards shows a Transceiver 902 comprising a Receiver 702 and a Transmitter 602. According to Richards, a RF signal is received at an antenna 704 and passes through a Correlator 710, Sub-carrier Demodulator 732 and a Pulse Summation stage 734. The output of the Pulse Summation stage 734 is sampled and held, and passed to a Signal Evaluation stage 1101. The Signal Evaluation stage 1011 determines a measure of the signal strength, received noise, and signal to noise ratio (SNR). These values are passed to a power control algorithm to produce a power control update value, which is sent to the transceiver that originated the received RF signal. *See* Richards, col. 15, lines 12-31 and 54-64; FIG. 11.

The Examiner asserts that the above recited features of Richards correspond to the features and limitations of claim 1. Applicant respectfully submits that Richards does not teach or suggest “a receiver configured to calculate channel information from a UWB pulse signal received over a UWB channel so that a UWB channel condition can be predicted. Richards teaches that the means for determining channel conditions is not located within the receiver.

Applicant respectfully submits that claim 1 is not anticipated under 35 U.S.C. § 102(e) because Richards does not teach or suggest all of the features of the claim. Accordingly,

Applicant respectfully requests that the Examiner withdraw the rejection of claim 1, and claims 2 and 5.

Applicant respectfully submits that claim 11 recites features similar to claim 1 except in method form and is patentably distinguishable from the prior art according to similar reasoning. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection of claim 11, and claims 12 and 15.

Rejections Under § 103(a)

Claims 3 and 13

Claims 3 and 13 are rejected under 35 U.S.C. § 103 (a) as being unpatentable under over Richards in view of Ozluturk et al. (US Patent No. 7,072,380; hereinafter “Ozluturk”).

Applicant respectfully traverses the rejection.

Claim 3 recites “the channel coding rate is a ratio of the number of information bits to that of the total bits including the information bits and redundant bits that are added for reliable data transmission during coding through a channel encoder.” The Examiner asserts that “one skilled in the art at the time of the invention was made would recognize that signals generated by the transmitter of Richards are encoded by certain code rates”, but the Examiner also concedes that “Richards does not explicitly teach a definition of a channel coding rate”. See Office Action at pg. 5.

In establishing a *prima facie* case of obviousness under § 103, it is well established that all the claim limitations must be taught or suggested by the prior art or in the general knowledge available to those of ordinary skill in the art. Here, the Examiner has admitted that Richards does *not* teach encoding, but argues that Richards *must* teach the use of encoding. In other words, it appears that the Examiner is arguing that at least some of the features of claim 3 are

inherent within Richards. However, to establish inherency, the Examiner must show through cogent technical reasoning that a feature is necessarily present. Accordingly, to the extent that the Examiner cites Richards for teaching or suggesting channel encoding, the Examiner has failed to establish a *prima facie* case of obviousness. Obviousness and inherency are distinct concepts, that which is inherent is not necessarily known.

The Examiner also concedes that Richards not teach or suggest that “channel coding rate is a ratio of the number of information bits to that of the total bits including the information bits and redundant bits that are added for reliable data transmission during coding through a channel encoder.” Instead the Examiner cites Ozluturk for the above recited features of claim 3. Ozluturk relates to a method and system for providing a high capacity, code division multiplexed communications systems which provide for one or more simultaneous user bearer channels over a given radio frequency.

The Examiner asserts that it would have been obvious to one of ordinary skill in the art “to incorporate the teaching of Ozluturk in the system of Richards by implementing the convolution encoder in the encoding scheme of Richards to create the signal for the purpose of enabling use of forward error correction techniques in order to detect and correct errors”. *See* Office Action at pg. 5.

However, Applicant respectfully submits that Ozluturk does not compensates for the deficiencies of Richards.

For the above recited reasons, Applicant respectfully submits that claim 3 would not have been obvious under 35 U.S.C. § 103(a) because the references, alone or in combination, do not teach or suggest all of the features of the claim. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 3.

Claims 4 and 14

Claims 4 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Richards in view of Dress, Jr. et al. (US Patent No. 6,603,818; hereinafter “Dress”). Applicant respectfully traverses the rejection.

The Examiner concedes that Richards does not teach or suggest “the modulation order is an order associated with a modulation scheme, such as 4-PSK, 8-PSK and 16-PSK schemes, by which the data are modulated in a modulator”, as recited in claim 4. Instead, the Examiner cites column 9, lines 22-29 of Dress and argues that “it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Dress in the system of Richards by implementing QPSK, 4-PSK, 8-PSK or 16-PSK or any other types of modulation schemes for the purpose of using modulation schemes that suits its application needs, as taught by Dress”.

Here, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness under § 103. When combining references, to establish a *prima facie* case of obviousness, the Examiner must show motivation to combine in the teachings or suggestions of the prior art or the general knowledge available to those of ordinary skill in the art at the time of the invention. The Examiner is not permitted to rely on the Applicant’s own disclosure for the motivation. Here, the Examiner has essentially argued that one of ordinary skill in the art would have been motivated to combine Richards at a future time when an “application need” exists that would have provided sufficient motivation. The Examiner has not pointed to an “application need” in Richards. Indeed, the Examiner appears to have admitted that there is no “application need” and is merely relying on some future need, such as is

disclosed in Applicant's disclosure. Therefore, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness with regard to claims 4 and 14.

For the above reasons, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), and respectfully requests that the Examiner withdraw the rejection of claims 4 and 14.

Claim 6

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Richards in view of Barnes et al. (US Patent Application 2002/0175850; hereinafter "Barnes"). Applicant respectfully traverses the rejection.

The Examiner concedes that Richards does not teach or suggest the same timing signal used for the transmitter and the receiver. Richards, does teach the use of two, separate "precision timing generators" 608 and 714. The Examiner asserts that "one of ordinary skill in the art... would have expected Applicant's invention to perform equally well... having a separate control signal for the transmitter and the receiver because the timing control signal for the receiver is adaptively changed based on the received signal itself (through lock loop filter 742)." *See* Office Action at pg. 8. Further, the Examiner cites Figure 6 of Barnes for teaching a timing control signal for both a transmitter and a receiver.

Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness. Whether Applicant's invention would perform equally well having different features is immaterial to obviousness. If the Examiner feels differently, the Applicant respectfully requests that the Examiner cite authority supporting such a principle.

Accordingly, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), and therefore respectfully requests that the Examiner withdraw the rejection of claim 6.

Claims 7-10 and 17

Claims 7-10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards in view of Barnes and Takamura (US Patent Application 2003/0035465). Applicant respectfully traverses the rejection.

With regard to claim 7 Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness as with claim 3.

Claim 8 recites “the receiver comprises: a correlation detector for calculating the channel information from the UWB pulse signal received over the UWB channel; and a decoder for decoding a data sequence of the UWB pulse signal into an original signal.” The Examiner asserts that Correlator 710 corresponds to the claimed Correlator, because it “provides channel information”. *See* Office Action at pg. 10. However, Richards clearly discloses that all calculations are performed in the Signal Evaluation stage 1011, not in the Correlator.

Regarding claim 9, Applicant respectfully submits that claims 9 would not have been obvious per the comments with regard to claims 1 and 6. Further, Applicant respectfully submits that claim 10 is at least patentable by virtue of its dependency on claim 9.

Accordingly, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness for claims 7, 9 and 10. Further more, Applicant respectfully submits that the references, alone or in combination, do not teach or suggest all of the features of claim 8. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection of the claims 7-10.

Claim 16

Claim 16 is rejected under 35 U.S.C. as being unpatentable over Richards in view of Walker et al. (US Patent Application 2004/0048574 A1; hereinafter “Walker”). Applicant respectfully traverses the rejection.

The Examiner concedes that Richards does not teach or suggest “the information transmission scheme performs channel coding for information at a lowest channel coding rate and determines modulation thereof with a lowest modulation order if the information to be transmitted comprises an initial transmission signal.” Instead the Examiner cites Walker and asserts that “it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Walker in the system of Richards by adjusting modulation types and channel coding rate for the purpose of adjusting signal transmission based on channel conditions”. See Office Action at pg. 12.

Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must provide a motivation to combine either in teachings or suggestions in the prior art or in the general knowledge available to one of ordinary skill in the art at the time of the invention. Here, the Examiner has essentially argued that the motivation to combine may be found in the fact that the references can be combined. However, it is well settled that the mere fact that references may be combined is not enough to establish a *prima facie* case of obviousness. See MPEP 1243.01(III).

The Examiner concedes that Richards and Walker, alone or in combination, do not teach or suggest the “lowest channel coding rate and lowest order of modulation types are implemented for initial transmission signal”. However the Examiner appears to assert that

because Applicant has not disclosed why such an implementation provides an advantage, one of ordinary skill in the art would expect Applicant's invention to work equally well whether or not a lowest channel coding and modulation" is used depending on user needs, and therefore it would have been obvious "to modify the teaching of Richards in view of Walker to obtain the invention as specified in the claim".

The Examiner must consider all features and limitations of a claim even if a specific benefit is not disclosed. The Examiner must show that all of the features of a claim are taught in the prior art or are available in the general knowledge of those with ordinary skill in the art. Here, the Examiner has admitted that the prior art fails to teach all of the limitations of claim 16 and has failed to offer any other source for the feature other than the Applicant's own disclosure.

Further, the Examiner has failed to offer any coherent reason why one of ordinary skill in the art would have been motivated to modify Richards and Walker to include the missing features of claim 16. The general assertion that the Examiner can rely on "user requirements" as a motivation to include a feature is just another version of impermissible hindsight. The Examiner is arguing that when an eventual need (or "user requirement) arises, one of ordinary skill in the art would be motivated to modify Richards and Walker to include the features of claim 16. The Examiner must define such "user requirement" and show where the "user requirements" and how they would motivate one of ordinary skill in the art to combine the references.

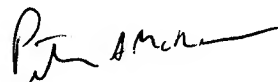
Accordingly, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), and respectfully requests that the Examiner withdraw the rejection of claim 16.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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